January 1998

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INFORMATION

Information Management and Computing at the University of Virginia Health Sciences Center Volume 4, Number 5

Pipkin Predicts: The Information Technology Forecast

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The University of Virginia's (UVa) Office of Information Technologies (OIT) is actively engaged in bringing new information technologies into the day-to-day life of the University, and a key component of that effort is the annual "Technology Forecast." George Pipkin of OIT's Advanced Technology Group heads up this project, which is currently in its second year.

This year's forecast predicts that the Internet will be the most important communication mechanism of the future, and that the PC will become a fundamental appliance, incorporating TV, phone, and data processing. Information technology will be used as often as driving a car. An example of this public embrace of technology was seen in the recent response to the availability of photos on the Web from the Pathfinder mission. The site was flooded with users, wanting to view up-to-the-minute photos and to view panoramas of Mars "from the driver's seat." The forecast views the following trends to be important:

- High-density semiconductors will give designers the chance to pack more and more functions into fewer and fewer chips.
- Increased commercial competition will complicate the job of creating standards for new technologies.
- Many tasks currently performed by PCs will be embedded in low-cost dedicated "personal accessory" devices that people will carry around with them.
- PCs will speak, listen, and recognize face/voice of individuals.
- The Web will represent the largest "library" in the world by the year 2010.

Hardware gets faster - but how much Moore?

The forecast sees a continuation of amazingly fast enhancements in semiconductor manufacturing technologies. Gordon Moore's law, that the number of transistors on a block of silicon doubles every 18 months, has been true for 30 years, but it will probably only be true for about 10-15 more years. Hardware growth will likely slow by the 2010-2020 decade. New developments such as the use of copper in semiconductors have contributed to the

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Photo: Keith Donnelly

George Pipkin
Advanced Technology Group

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EDITOR
Anne Wood Humphries

PRODUCTION EDITOR
Sarah M. Handley

GRAPHIC ARTIST
Tom Bellucci

EDITORIAL ADVISORS
Sara Arneson, Gretchen Naisawald Arnold, Armando Bolmey, Stephen Borowitz, Bill Detmer, Cheryl Jones, Bill Pearson, Janet Sakell, Steve Stearns, Linda Watson

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Phone: 804-924-0051
TDD: 804-982-HEAR
E-mail: inside.info@virginia.edu
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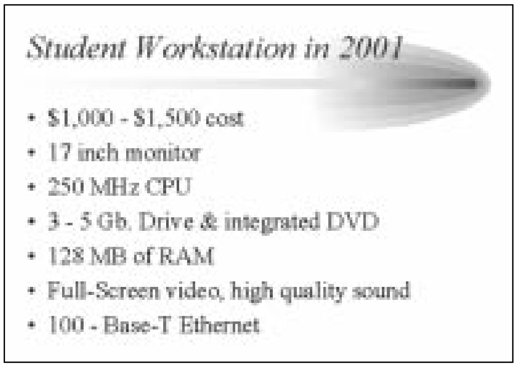
development of smaller and faster chips, but as the size of the smallest feature falls below 0.18, actual atomic layers become visible. Dissipating heat from the chip then becomes increasingly difficult, forcing designers to use lower voltages.

Workstations in 2001

Workstations are headed in two directions - proprietary high-end units that support the latest technologies, and less expensive standards-based equipment that is surprisingly powerful. In addition to the familiar word processing and spreadsheet operations, the typical workstation being used at the University in 2001 for a student will be capable of functioning as a multimedia communications and entertainment center and a personal Web server. However, it will cost only about $1,000-1,500. The faculty/staff computer, at $2,500-3,000, will have even more power and memory, and will enable multimedia production and editing of instructional material, research simulations, and will be utilized more frequently as a collaboration tool.

The next Internet

Just as the current Internet was born in Universities and research labs, the next generation of Internet technology is being introduced in a consortium project involving over 100 major Universities (including UVa) called Internet II. This facility is already in operation, providing high-speed data connectivity among members of the consortium. It is expected to enable applications such as high-quality video over the network, remote-control experiments, and "telepresence." Even though commodity commercial traffic is not permitted on Internet II, the commercial sector is expected to adopt the standards being developed and established there and follow on with these capabilities over the next 10 years.



Student Workstation in 2001

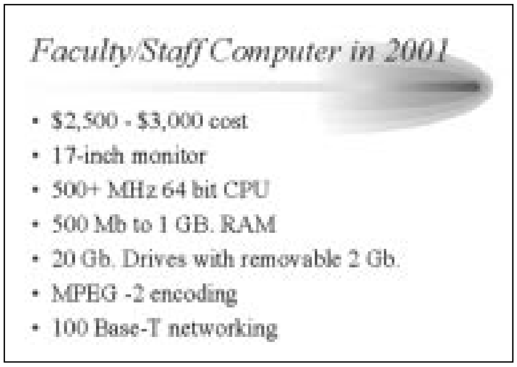
- $1,000 - $1,500 cost
- 17 inch monitor
- 250 MHz CPU
- 3 - 5 Gb. Drive & integrated DVD
- 128 MB of RAM
- Full-Screen video, high quality sound
- 100 - Base-T Ethernet

Outlaws and robber barons

The forecast does not paint an entirely rosy picture of the future. Among the problems introduced by new technologies are incompatibilities between new hardware and old, commercialization, decreased cooperation between vendors, less trust, and consequently a required emphasis on security measures and dealing with "outlaws and robber barons" in the computer industry. New rivals, all competing for a part of the information industry pie, include software developers, systems integrators, information providers, and phone companies. A disadvantage for consumers is the increasing domination of proprietary standards, which has resulted in the recent court battles involving Microsoft. There is less and less ability as a consumer to mix and match components, because there are proprietary sockets, plugs, and protocols. Vendors are going to want a "subscribe" situation, not a "buy" situation, so that they can reap profits over and over again. Maintenance of systems will also continue to be an increased burden brought on by constant innovation.

Some things never change

Certain things are not likely to change very much, including expensive and unwieldy monitors, slow dial-up modems, and the reluctance of users to adopt new operating systems. Advances in the technology of monitors seems to consistently lag behind other components, and prices for flat screen



Faculty/Staff Computer in 2001

- $2,500 - $3,000 cost
- 17-inch monitor
- 500+ MHz 64 bit CPU
- 500 Mb to 1 GB. RAM
- 20 Gb. Drives with removable 2 Gb.
- MPEG -2 encoding
- 100 Base-T networking

displays can still be up to 8 times the cost of conventional monitors. Fast modem speed does not necessarily improve the time it takes to get data across to your home computer as long as the transmission is still being carried out through phone lines. Pipkin notes, "the network slows down at the curb," and even with high-speed modems, in actuality the real speed limit is closer to 33Kbps. Cable modems and satellite systems are promising, but are still expensive and not at all widely available. Consumers are still reluctant to change from familiar systems, such as the slow transition through the general population from DOS to Windows to Windows 95.

Big brother?

Advances in semiconductor technology allow computers to take on more and more human characteristics, and our systems will ultimately be able to speak and listen to the user. Face and voice recognition will allow positive advancements, such as dictation versus typing and use of computers by the disabled. The dark side is that these capabilities can be used for surveillance. Research projects are under way that allow digital cameras to recognize faces in a crowd. Computers that recognize speech will increase the likelihood of wiretapping.

Challenges for computer users

With all the growth in the computing arena, the forecast anticipates the emergence of a "New World disorder." There will be over 300 million Internet users by the year 2002, but even though everyone is in contact, the culture will be largely an anonymous one. Also, with up to 100 gigabytes of new information currently being added to the Web every month, users will be faced with an even greater flood of information - much of it useless, commercially driven spam. Technologies such as differentiated channels are emerging to somehow organize the information. Tagged formats, searching, and access will become key. Who will help us sort out the mess? Pipkin predicts that Universities will continue to play a major role in building the information environment of tomorrow. ■

The Advanced Technology Group

Function: To act as a Think Tank for advanced technology development - forming a "staff bridge" between technology policy and practice at the University

Members/ Projects:

Tim Sigmon - Advanced Technology Group Leader- *tms@virginia.edu*

Lara Ashmore - Classroom Technology Initiative (CTI); ITC Web; Network-based Multimedia- *lara@virginia.edu*

Simona Babiceanu - Electronic File Cabinet team; Web Database Technology; Instructional Toolkit - *seb4b@virginia.edu*

Wade Komisar - Open the Mainframe project; Access to protected Web- based databases for dial-up users - *wbk3a@virginia.edu*

Bill Niebel - Electronic File Cabinet project leader - *niebel@virginia.edu*

George Pipkin - Document Conversion Server; Technology Forecast; Network-based multimedia technology - *pipkin@virginia.edu*

Dave Saunders - Instructional Toolkit; Web security technology; Robotic storage device technology - *drs8h@virginia.edu*

TechTalks: The ATG hosts a series of informal briefings on computer-related technologies on the first Wednesday of each month at 3:30 p.m. in Carruthers Hall, ITC Conference Room A. Be there! (Note: No TechTalk in January - 1998 series begins February 4th.)

Web Site: **http://www.itc.Virginia.EDU/department/org/atg/**

January 1998

CAL

WINDOWS, WORD, EXCEL, ACCESS....

In-depth courses on Windows, administrative systems, and Microsoft Office Programs are available for a fee through ITC's Computer Skills Development workshops.

For a current schedule, please consult their training page at **http://www.itc.virginia.edu/itcweb/help/training/home.html** or call the ITC Training Administrative Assistant at 243-6595.

MONDAY	TUESDAY	WEDNESDAY
5 **Information Warehouse - Intro** (ITC) 2:00pm - 4:30pm Carruthers 248	**6**	**7**
12	**13** **Office Technology Skills Certification Assessment** (ITC) 1:00pm - 4:30pm Carruthers 248	**14**
19	**20**	**21** **Wednesday, January 21** **Searching MEDLINE: Intro** (HSL) 9:00am - 11:00am Health Sciences Library LRC
26 **Using HTML to Create WWW Pages** (HSL) 3:00pm - 5:00pm Health Sciences Library LRC	**27**	**28**

ENDAR

For a catalog with full course descriptions, see:
http://www.med.virginia.edu/hs-library/newsletter/catalog.html

THURSDAY	FRIDAY
Health Sciences Library Closed *ITC Help Desk Closed*	**2** *Health Sciences Library Open* *8:00am - 5:00pm*
Office Technology Conference: Putting Technology to Work for You (ITC) 8:30am - 4:00pm Wilson Hall	**9**
	16
	23
Browsing the Web: Intro (HSL) 9:00am - 11:00am Health Sciences Library LRC	**30** **PowerPoint: Intro** (HSL) 10:00am - 12:00Noon Health Sciences Library LRC

CLASS SPONSORS AND REGISTRATION

(ACHS) = ITC - Academic Computing Health Sciences
http://www.med.virginia.edu/achs/classes/
achs-train@virginia.edu
982-4025

(ALD) = Alderman Library
http://poe.acc.virginia.edu/~libinstr/courses.html
lib-instruct@virginia.edu
924-7702

(EDU) = Education Library
http://curry.edschool.virginia.edu/curry/resources/library/short/shortcourses.html
cutler@virginia.edu
982-2664

(HSL) = Health Sciences Library
http://www.med.virginia.edu/hs-library/info_serv/classes.html
kkg8n@virginia.edu
924-5521

(ITC) = Information Technology and Communication
http://www.itc.virginia.edu/itcweb/help/training/home.html
itc-train@virginia.edu
243-6595

(MCC) = Medical Center Computing
http://www.mcc.virginia.edu/train.html
rlc3m@virginia.edu
924-8390

Note: *Most sponsoring agencies are glad to accommodate special training needs. Contact the appropriate class sponsor to arrange group inservice or specially scheduled classes.* ■

Tools of the Trade

Do You “Speak” Word?: Document Conversion Made Easier

> “When I am not understood, it shall be concluded that something very useful and profound is couched underneath.”
>
> -Jonathan Swift

Faculty, researchers, and students can now more easily share files with colleagues, both locally and at great distances, without knowing what electronic formats might be suitable for every potential recipient. Attaching the document to a piece of e-mail often generates a flood of inquiries asking for the document in specific formats. Interchange formats are only a partial solution since support for them varies across different word processors and they leave the e-mail system clogged with large attached objects that may be broken up or garbled by different list managers or mail gateways.

Instead of sending the document to intended recipients, the Document Conversion Server (DCS) sends a delivery slip. Contained within that message is a URL that can be used to access the DCS with any WWW browser. The URL identifies the document and includes a randomly generated access key to prevent documents falling into the wrong hands. Upon receiving this request, the DCS responds with a screen that offers the recipient the opportunity to specify the format that is most appropriate to his/her needs. It also gives the recipient a chance to preview the document directly with an HTML representation. Downloading is also accomplished via the browser using an octet-stream mime tag.

At the moment, the conversion filters used by this server will not handle recently introduced file formats such as those produced by Office 97 (Word). However, it is possible to save files in earlier formats using those applications. In the case of Word, use Word 6.0 formats or RTF (rich text format) and the transfers will go smoothly.

How it works

To try out the server, go to:
http://dce.acc.virginia.edu/cgi-uva/cw/csg-dcs/dcshome.cgi/home

A screen will appear in which you can specify which file you want to work with (use the browse button to find the file on your disk). You should also enter your e-mail address and the e-mail address of the person you are sending this file to. A field is also provided that will allow you to stipulate the length of time this file should be retained on the server. The default interval is one week, but this can be increased to as long as three months if desired. When you have entered everything, hit the upload button, and the server will copy the file from your hard disk to the server. At that point, an e-mail delivery slip will be sent to the intended recipient. Any comments you might have entered in the comments box will be included at the front of this message, so this is a good place to put some words describing what the file is.

The server does a preliminary check on the document to determine its type. If the type is not one of the ones currently supported by the available converter filters, you will receive an error message. If this happens, the best strategy is to save the file in a format that is supported by the server. If the document is word processing, a good candidate is RTF.

Your package has arrived

When you receive a delivery slip you will notice that there is a URL toward the bottom. If you are using a URL-aware mailer such as Netscape or Eudora v3, all you have to do is to click on this URL. Otherwise, cut and paste it into the “open location” dialog box of your browser. A screen will come back giving you an opportunity to specify what file format you want this particular file in. This screen also gives you a chance to preview the file in your browser. You can actually download the file with the download button, and when this happens, a dialog box appears asking what you want to name this file. All files start off with their original names. After doing that, the file will be downloaded to your disk, and you can open it with the software tool most appropriate to its format. That’s all there is to it.

Address questions to: George Pipkin, gpp8p@virginia.edu, 924-1329.

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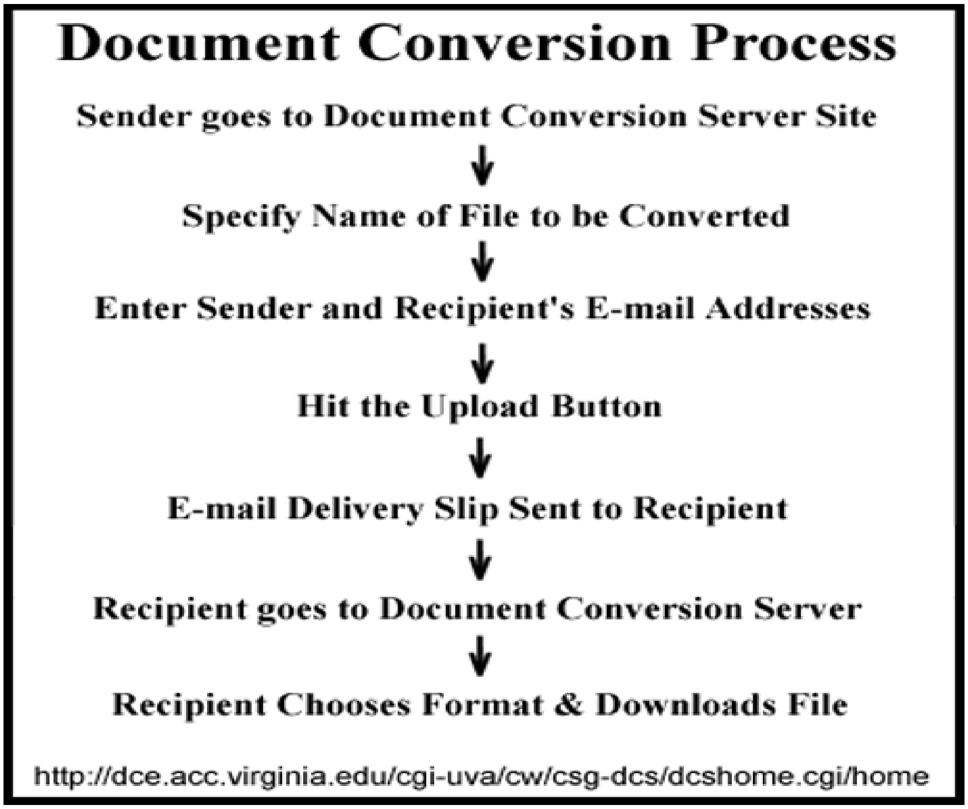

Document Conversion Process

Sender goes to Document Conversion Server Site
↓
Specify Name of File to be Converted
↓
Enter Sender and Recipient's E-mail Addresses
↓
Hit the Upload Button
↓
E-mail Delivery Slip Sent to Recipient
↓
Recipient goes to Document Conversion Server
↓
Recipient Chooses Format & Downloads File

http://dce.acc.virginia.edu/cgi-uva/cw/csg-dcs/dcshome.cgi/home

Double Click

People, events, and news in informatics

Health Sciences Library

Circulation	924-5444
Reference Desk	924-5591
Learning Resources Center	924-5521
Administration	924-5464

Library Hours:

Mon-Thurs	8am-12am
Friday	8am- 6pm
Saturday	8am- 5pm
Sunday	10am-12am

New Year's Hours:

Thursday, January 1, 1998
CLOSED

Friday, January 2, 1998
8am - 5pm

Medical Center Computing

Help Desk	924-5334

ITC-Academic Computing Health Sciences

Information	982-4025

Information Technology & Communication

Help Desk	924-3731

The Claude Moore Health Sciences Library held its annual Library Awards Ceremony on December 12, 1997, to recognize special achievement in the workplace and the community. The following awards were presented:

Employee of the Year:
Jeri Davis, Document Delivery/Interlibrary Loan Services

Above and Beyond the Call of Duty Award:
Joby Topper, Historical Collections & Services

Outstanding Achievement Award:
Sarah Handley, Information Services

Community Service:
Diane Aramian, Circulation/Access Services

Friend of the Library:
The Facilities Management Team from Medical Center Physical Plant

The 3rd Annual **Information Connection: Implementing Effective Technologies in Healthcare** Conference will be held January 28-30, 1998, in Burlington, VT. Topics covered at the conference will include telemedicine, network-mediated medical communities, and implementation of informatics technologies. For information or online registration, check out their Web site at **http://uvmce.uvm.edu:443/infoconn/infocon98.html** or e-mail cleduc@zoo.uvm.edu. ■

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